Space Weather Forecast

Issued on Thursday, 21 October 2021 at 01:14 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: No significant activity expected.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity was Very Low, but the background x-ray flux has been slowly rising over the last 24 hours. This is likely to be due to a potential new region rotating onto the southeast limb, currently visible on imagery from the STEREO-A spacecraft. Otherwise, there is currently one numbered sunspot region on the visible disc, in the southeast quadrant. This region appears to be stable with a magnetically simple configuration. No new Earth-directed CMEs (Coronal Mass Ejections) were observed in available imagery in the last 24 hours.

Solar Wind / Geomagnetic Activity: Solar wind speeds were at slow to slightly elevated levels, varying between 370-420 km/s, but with a steady rise to reach elevated levels around 520 km/s since 20/1830 UTC. The total Interplanetary Magnetic Field was weak to start, but increased slightly after 20/1400 UTC, before increasing again to moderate after 20/2030 UTC. The north-south component varied weakly for much of the period, but started to vary more strongly after 20/1945 UTC. Resultant geomagnetic activity was Quiet (Kp 0-2). These parameters suggest a recent connection to the fast wind from a coronal hole.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Solar activity is expected to be at low or very low levels through the next few days, but perhaps with an increase in flare probabilities as a new region rotates onto the southeast limb.

Solar Wind / Geomagnetic Activity: Solar wind speeds are currently at elevated levels due to a connection to the fast wind from a coronal hole. This is likely to continue over the next 24 hours, before slowly declining through Days 2 and 3 (22-23 Oct). A weak CME may glance Earth at first, but no significant effects are expected. Geomagnetic activity is likely to be Quiet to Unsettled, with isolated Active intervals on Days 1 and 2, and a very slight chance of isolated G1/Minor geomagnetic storms on Day 1.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2021. All Rights Reserved.

Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	5	1	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	1	2	2	2
Very Active	R3 to R5 X	No	1	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	1	1	1	1
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 330 135 4254 Email: moswoc@metoffice.gov.uk

© Crown Copyright 2021. All Rights Reserved.